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SECURITY INFORMATION

PROVISIONAL INTELLIGENCE REPORT

PETROLEUM IN THE SOVIET BLOC

PRODUCTION OF SYNTHETIC LIQUID FUELS IN THE EUROPEAN SATELLITES

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Note

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FOREWORD

This report is one of a series of provisional reports pertaining to petroleum in the Soviet Bloc. The entire series is intended to cover all phases of petroleum, natural gas, and synthetic liquid fuels in the Soviet Bloc. These reports are presented as an intermediate step in consolidating pertinent intelligence on the subject and not as a finished study. In the consolidation of the available information, various reports and documents representing research by other intelligence agencies were utilized along with the results of research and analysis by members of the staff of CIA.

It is intended that this series of reports will serve the following purposes:

a. Represent a base for contributions and additions by CIA and other agencies actively interested in petroleum intelligence.

b. Facilitate the selection of the specific and detailed gaps in intelligence warranting priority attention.

c. Provide the basis for a broad study on petroleum in the Soviet Bloc and various studies directed toward specific critical problems.

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II-E

PRODUCTION OF SYNTHETIC LIQUID FUELS IN THE EUROPEAN SATELLITES

Summary

The synthetic liquid fuel industry in the European Satellites, the largest and most highly developed in the world, makes an important contribution to the economic potential for war of the Soviet Union. The industry was developed by the Germans prior to and during World War II in the Soviet Zone of Germany and Czechoslovakia. Although war damage and dismantling by the Soviets after the war reduced the capacity of the synthetic refineries by about one-half, rehabilitation of the industry has been taking place for several years. Dismantled plants are being rebuilt, and the efficiency of operation is increasing. The output is increasing steadily and it is expected to continue. It is from the synthetic fuel industry that the only high octane aviation gasoline, 95/130, produced in the European Satellites is obtained. Unknown quantities of T-1 jet fuel have been produced and shipped to the USSR.

There is enough known of the plans for the production of gasoline and diesel oil in the Soviet Zone of Germany and Czechoslovakia to estimate the output of 95/130 aviation gasoline and total products, and various reports indicate that the output of jet fuel at the end of 1951 was at the rate of 9 to 10,000 tons a month. Since there is flexibility in the operation of synthetic refineries which would permit a change in the pattern of production, the output of the various products can be changed to a certain extent as the requirements dictate. For example, the production of diesel oil could be increased if needed, but there would be an accompanying decrease in the production of gasoline. The following table shows the estimated output of 95/130 gasoline and total products for East Germany and Czechoslovakia from 1949 through the first half of 1953.

Estimated Production of High Octane Gasoline and Total Products

Thousand Metric Tons

Year	95/130 Gasoline	Total Products
1949	85	1,045
1950	100	1,240
1951	130	1,385
1952	160	1,545
1st half of 1953	95	860

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Actual availability to the consumer is slightly less since there is an estimated 2 percent distribution loss between the refinery and the consumer. As a result, the quantities of 95/130 gasoline and total products supplied to the consumer is as follows:

Estimated Availability to the Consumer

	Thousand Metric Tons	
Year	95/130 Gasoline	Total Products
1949	83	1,024
1950	98	1,215
1951	127	1,357
1952	157	1,514
1st half of 1953	93	843

1. Soviet Zone of Germany

Since East Germany has no known deposits of crude oil, it is entirely dependent on its well-developed synthetic liquid fuel industry and on three small crude oil refineries which refine crude oil imported from Austria. Over 95 percent of the country's output of liquid fuels comes from the synthetic refineries, and four of these, Boehlen, Leuna, Zeitz and Schwarzheide, together account for about 90 percent of the production of gasoline and 60 percent of the production of diesel oil. SAG plants, owned and operated by the Soviet Union, account for 96 percent of the liquid fuel production, and German-owned (VVB) plants produce the remaining four percent. (Appendix)

According to recent reports, two of the synthetic refineries, Boehlen and Schwarzheide, were producing about 30,000 tons of T-1 jet fuel a month at the end of 1951, a large part of which is shipped regularly to the USSR. 1/* Aviation gasoline of 95/130 grade is made at Boehlen, 2/which also produces 95-octane. The Leuna and Zeitz plants reportedly were being converted to the production of aviation gasoline early in 1951, 3/ and the Fischer-Tropsch installation at Luetzkendorf was closed down on 31 March 1951 preparatory to dismantling and transferring to Schwarzheide for more efficient operation. 4/

Although detailed plans for the future are not known, there is little doubt that output, especially of such specialized products as aviation gasoline and jet fuel, will increase. However, it is known that production goals of 927,000 tons of gasoline and 660,000 tons of diesel oil in 1955 5/ have been set and that they probably will be met. The planned 1952 production of liquid fuels at the SAG

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plants shows an increase in all products. The scheduled output at these refineries is reported as follows: 6/ aviation gasoline, 100,000 tons; iso-octane, 30,000 tons; jet fuel, 125,000 tons; motor gasoline, 680,000 tons; kerosene, 20,000 tons; diesel oil, 570,000 tons; fuel oil, 25,000 tons; and lubricants, 85,000 tons. It seems doubtful, however, that these goals can be attained.

Based on the information available, synthetic fuels output in 1950 and 1951 may be estimated as follows: 7/

Soviet Zone of Germany

Output of Synthetic Liquid Fuels

Thousand Metric Tons

Product	1950	1951
Aviation Gasoline (100/130)	70	90
Motor Gasoline	395	460
Kerosene	25	30
Diesel Oil and other distillates	460	465
Lubricants	45	55
TOTAL	995	1,100

It is known that jet fuel has been and will continue to be produced in increasing quantities. While jet fuel is not shown in the above table, its output will not alter the totals since it is probably included in the above figures. In addition to the above there should be added some 40,000 tons of motor gasoline, kerosene, diesel oil and fuel oil, and 65,000 tons of lubricants obtained from 120,000 tons of crude oil imported from Austria.

2. Czechoslovakia.

The most important establishment of the Czechoslovak petroleum industry is the Stalin Works, the synthetic fuels plant at Most. It is the only synthetic refinery in the country and supplies about 45 percent of all the refined products produced in Czechoslovakia. Built by the Germans during World War II to produce synthetic fuel from brown coal by the Bergius process, it was designed to have a capacity of one million metric tons a year. However, the maximum output obtained was only 682,000 tons. 8/

The Stalin Works were badly damaged during the war. Inability to obtain replacement equipment for this installation from the original manufacturer in Ludwigshafn, West Germany (French Zone), has hampered reconstruction. However,

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the plant has been partially restored, and with further restoration output will continue to rise. In fact, it is possible that synthetic gasoline production at Most can be increased to provide a surplus for export to the other Bloc countries. 9/

The plant at Most is the only refinery in the European Satellites outside Eastern Germany that produces high octane aviation gasoline, grade 95/130. 10/ The output of this important commodity is expected to reach 40,000 tons in 1951.

The table below shows the estimated output of synthetic fuels at the Stalin Works in 1950 and 1951. 11/

Czechoslovakia

Output of Synthetic Liquid Fuels

Thousand Metric Tons

Product	1950	1951
Aviation Gasoline (95/130)	30	40
Motor Gasoline	115	125
Kerosene	25	25
Diesel oil and other distillates	80	95
TOTAL	250	285

3. Bulgarian Oil Shale.

In addition to the synthetic fuel industries in the Soviet Zone of Germany and Czechoslovakia, there are quite large deposits of oil shale in Bulgaria which are well-suited to a shale oil industry. The shales are high in oil content and would lend themselves readily to open pit mining.

The two most important deposits are immediately north of Brezhnik, where an estimated 30 million tons of shale have a recoverable crude oil content of about 3.3 million tons, and at Serbinovo, 9 miles south of Gorna-Dzhumaya, where some 120 million tons of shale are estimated to contain nearly 30 million tons of crude oil. There are other deposits near Kyustendil, Popovtzi, and Kazanlik. 12/

Periodically plans for the development of these sources of oil are reported. Although it is probable that some experimentation is being conducted, there is no information on the extent of development or on probabilities for the near future. However, it is reported that a plant for the experimental recovery of oil from shale is in operation in eastern Bulgaria, but its exact location and size are not known.

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APPENDIX

Soviet Zone of Germany
1950 Output of Gasoline Diesel Oil 7/ Metric Tons

Name	Owner	Process	Capacity
Boehlen a/	SAG	Bergius	270,000
Leuna b/	SAG	Bergius	90,000
Zeitz b/	SAG	Bergius	270,000
Schwarzheide c/	SAG	Fischer-Tropsch	47,000
Goelzau	SAG	Carbonization	40,000
Lebau (Deuben)	SAG	Carbonization	27,500
Koepsen	SAG	Tar Distillation	30,000
Rositz	SAG	Carbonization	65,000
Luetzkendorf 1 d/	VVB	Fischer-Tropsch	7,000
Luetzkendorf 2	VVB	Crude Oil	21,000
Edderitz	VVB	Tar Distillation	2,500
Boesdorf	VVB	Tar Distillation	3,000
Klaffenbach	VVB	Crude Oil	2,000
Herrenleite (Pirna)	VVB	Crude Oil	42
TOTAL			871,420 e/

a. Includes 70,000 tons of 95/130 aviation gasoline but excludes unknown quantities of jet fuel.

b. Being converted to the production of high octane aviation gasoline in 1951.

c. Excludes unknown quantities of jet fuel.

d. Being dismantled and transferred to Schwarzheide in 1951.

e. Does not include small quantities of kerosene, fuel oil and lubricants.

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